

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

VF Outdoor, LLC
Petitioner

v.

Cocona, Inc.
Patent Owner

Patent No. 8,945,287
Inter Partes Review No. IPR2018-00190

SECOND DECLARATION OF DR. GREGORY W. HAGGQUIST

I, Gregory W. Haggquist, declare as follows:

1. I have personal knowledge of the matters set forth herein, and if I am called to testify, I could and would testify competently thereto.

2. I received a BS in Chemistry from the University of Connecticut in 1986 and a Ph.D. in Physical Chemistry from the University of Nevada in 1991.

3. I co-founded Cocona, Inc. (“Cocona”) in 2000 and am currently the Chief Technology Officer.

4. I am a named inventor on a number of patents and patent applications, including U.S. Patent No. 8,945,287 (the “’287 Patent”) and U.S. Patent Publication No. US 2004/0018359 (the “’359 Application”).

5. Cocona owns the ‘287 Patent and the ‘359 Application.

6. I have more than 30 years of experience in research and development related to composite materials and the interaction of light with polymer materials.

7. I understand that the validity of the ‘287 Patent has been challenged by VF Outdoor, LLC (“VF”) in a proceeding at the U.S. Patent and Trademark Office.

I. DISCLOSURE TO THE NORTH FACE (“TNF”) AND LICENSING

8. I understand that VF owns and operates the TNF brand.

9. Starting in 2005, I started on reinventing waterproof-breathable fabrics. My goal was to improve the functionality of waterproof-breathable

membranes. A person skilled in the art at that time (“POSITA”) recognized that as membrane thickness increases, the diffusion of water vapor is reduced. If I was to add more thickness, I had to overcome this negative impact. I wanted to add active particles to a membrane to change the diffusion equation to effectively build up water vapor concentration on the first surface of the membrane, causing more effective water vapor diffusion.

10. To add these active particles, I had to use a binder—a polymer—which would have the negative effect of transporting vapor due to the added thickness. To achieve my desired goal, I would have to break the first rule in waterproof-breathable membranes—increasing thickness. Thickness was the enemy, and a POSITA would understand that adding thickness was going in the wrong direction for higher performance measured by breathability.

11. To overcome this fatal flaw, I understood that I had to minimize the negative impact of added thickness and maximize the desired effect. Specifically, the desired effect I was trying to achieve was using an active particle that could attract water vapor out of the environment and stack it up on the membrane. This effectively causes a change in the water vapor concentration gradient across the membrane, overcoming the thickness flaw. There was a balancing act between the ratio of the thicknesses of the print layer and the underlying base material.

12. The solution I devised is outlined in the ‘287 Patent and is referred to as the 2.5L technology.

13. The novel features of the 2.5L technology are presented in claim 27 of the ‘287 Patent, and include a layer of active particles printed or laminated (a “second thickness”) on top of a cured based material (the “first thickness”) with the ratio of the first thickness to the second thickness at 2.5 to 10. It is the *ratio* of the thickness of the active-particle print layer to the base layer that provides the key breakthrough in the area of waterproof water-vapor-permeable membranes. The ratio I invented both increased water vapor transport *and* broke the first rule in waterproof-breathable membranes—by increasing thickness.

14. After the application for the ‘287 Patent was filed and product practicing claim 27 was made, Cocona shared the novel features of the ‘287 Patent with TNF. We showed TNF the first functional print on a membrane that overcomes thickness issues and increases the performance of the membrane. The resultant 2.5L provided a dry touch, a more comfortable microclimate, higher effective moisture vapor transport, and a durable 2.5L laminate.

15. I developed demonstrations and test methods to show the effect of these novel features of claim 27 of the ‘287 Patent to TNF, including but not limited to the first thickness, second thickness, and active particles of claim 27.

16. TNF loved the product, and agreed to license Cocona's technology, which matured into the '287 Patent. In fact, TNF was enamored enough with Cocona's technology that TNF launched the FlashDry brand in 2011. Cocona gave permission to TNF to use the FlashDry trademark so long as TNF only used Cocona technology under that brand and also stated that FlashDry was powered by Cocona.

17. The FlashDry product line launched with great success in the market place, and great reviews followed. The 2.5L laminate raised the industry standard for comfort and performance and embodies the novel features of claim 27 of the '287 Patent.

18. Cocona has marketed the technology of claim 27 of the '287 Patent under the following brand names: Cocona, Cocona Xcelerator, Minerale, AlphaDry, 37.5 Technology. Products under these brand names incorporate the novel features of claim 27 of the '287 Patent.

19. I provided a sample of an early prototype 2.5L fabric to Cocona's expert in this case, Charles Daniels, labeled "TNF Laminate Our Print." This sample was made according to claim 27 with a cured base material of polyurethane polymer and with an applied print layer made of activated carbon and a volcanic mineral (zeolite), and which was made to meet the thickness ratio and MVTR range of claim 27.

20. I also provided a sample to Charles Daniels labeled “TNF Jacket.”

This sample was made according to claim 27 with a cured base material of polyurethane polymer and with an applied print layer made of activated carbon and a volcanic mineral (zeolite), and which was made to meet the thickness ratio and MVTR range of claim 27.

II. TNF’S TERMINATION OF LICENSE AND RESULTING LITIGATION

21. In 2013, TNF began using other technology products in their FlashDry product line, and pulled away from stating that the FlashDry product line was powered by Cocona technology. At about the same time, copycat products became available under the FlashDry brand name.

22. As a result of TNF’s conduct, Cocona was forced to protect its intellectual property interests in the market, and caused Cocona to instruct its manufacturing partner to cease selling fabric that embodied the claims of the ‘287 Patent to TNF. Ultimately, TNF used the technology Cocona disclosed to them to make products that practiced the ‘287 Patent. When the ‘287 Patent issued, Cocona asked TNF to cease selling products that practiced the ‘287 Patent. TNF did not stop.

23. Cocona filed litigation in the District of Colorado styled *Cocona, Inc. v. VF Outdoor, LLC*, Case No. 16-cv-02703-CMA-CBS. As part of that litigation, Cocona filed its infringement contentions (Ex. 1026), wherein Cocona shows that

VF's DryVent 2.5L products meet all limitations of claim 27, as well as other claims.

III. COCONA'S 2.5L TECHNOLOGY RECEIVED SUBSTANTIAL AND ONGOING PRAISE

24. Products that embody claim 27 of the '287 Patent have received substantial and ongoing praise, including awards, accolades, and glowing reviews.

25. Exhibit 2014 shows a review of TNF's FlashDry product line technology, which is grounded in and based on Cocona's technology of claim 27 of the '287 Patent. (http://running.competitor.com/2012/02/shoes-and-gear/the-north-face-unveils-flashdry-science_47664). That review states in part that, "The porous particles work with your body to regulate temperature by accelerating moisture removal and dramatically improving dry time. When worn together with other items in the collection, such as a baselayer or jacket, the dry time is even faster than when wearing alone."

26. Exhibit 2015 shows an interview of TNF's Director of Product, Philip Hamilton discussing in part the FlashDry product line, which is grounded in and based on the technology of claim 27 of the '287 Patent. (<https://www.zdnet.com/article/qa-philip-hamilton-director-of-product-the-north-face>). In that interview, Mr. Hamilton says in part, "FlashDry regulates body temperature because of a micro-porous particle we and our vendor added to a printable layer on some laminated textiles. What makes it unique is that we're

using in numerous garments used as head-to-toe layers, from knits to synthetic insulation to waterproof, breathable clothing. In our industry, our competitors haven't yet been able to use a single high-performance tech that's appropriate for all garments.”

27. Exhibit 2016 shows a Gear Junkie review of TNF's FlashDry product line, which uses the novel features of claim 27 of the '287 Patent (<https://gearjunkie.com/north-face-2012-product-launch>). That review states in part, “...the final significant unveiling at The North Face event last week was a technology called FlashDry...The North Face calls it a ‘naturally-derived fabric additive.’ This secret sauce will be added into base layers and jackets, and it is touted to be a technology that embeds micro-porous particles that dissipate moisture (i.e., sweat). The particles increase the surface area that moisture sits on, the company cites, allowing the moisture to spread out more and evaporate quicker...FlashDry...creat[es] a waterproof/breathable shield for Gore-Tex-like performance but greater breathability, the company cites. In an interview, Todd Spaletto, president of The North Face told me FlashDry was one of the ‘biggest innovations in the history of the company.’”

28. Exhibit 2017 shows a product review of the TNF Stormy Trail jacket, which used the novel features of claim 27 of the '287 Patent (<https://www.irunfar.com/2012/10/the-north-face-stormy-trail-jacket-review.html>).

29. Exhibit 2018 shows a product review of the TNF Apex Jacket, which used the novel features of claim 27 of the '287 Patent

(<https://www.businessinsider.com/north-face-mens-apex-lite-jacket-2012-12>).

That review states in part, “Every athlete should own this jacket. It acts like a second skin, with body-mapped ventilation and North Face’s FlashDry technology that wicks sweat and moisture away from the skin, through the fabric, and eliminates it. This means the FlashDry fabric dries quicker and more efficiently, and will keep you from getting clammy in cold conditions.”

30. Exhibit 2019 shows a product review of the TNF Split Hardshell Jacket, which used the novel features of claim 27 of the '287 Patent

(<https://www.backpacker.com/gear/gear-review-the-north-face-split-hardshell-jacket>). That review states in part, “...TNF’s new FlashDry interior treatment accelerates wicking and improves drying time.”

31. Exhibit 2020 shows a product review of the Sierra Designs Jive, which used the novel features of claim 27 of the '287 Patent.

(<https://www.climbing.com/gear/bring-on-the-rain-hard-shells>). That review states in part, “And the 2.5-layer Cocona Xcelerator fabric proved fully waterproof, keeping out tester warm and dry during a winter day in Oregon (read: 30°F and wet, wet, wet).”

32. Exhibit 2021 shows a product review of the Mavic Stratos H20 Jacket, which used the novel features of claim 27 of the '287 Patent.

(<https://www.pinkbike.com/news/Pinkbike-Product-Picks-may-31-2013.html>).

That review states in part, "It's made of breathable Cocona Xcelerator fabric, bonded together at the seams to create a jacket rated for whatever nature throws at you."

33. Exhibit 2022 shows a produce review of the Millett Alpine Xcelerator Hardshell jacket, which used the novel features of claim 27 of the '287 Patent.

(<https://www.backpacker.com/gear/gear-review-millet-alpine-xcelerator-hardshell>).

34. Exhibit 2023 shows a product review of the Sierra Design Sonic Outlaw Soft Shell jacket, which used the novel features of claim 27 of the '287 Patent

(<http://backcountryskiingcanada.com/Sierra%20Design%20Sonic%20Outlaw%20Soft%20Shell%20Jacket%20Review>).

That review states in part, "Sierra Designs was one of the original eco-conscious outdoor companies and they continue this trend with their new Xcelerator technology from Cocona. Any product on the market is going to have an environmental footprint but it is good to see some innovative solutions that don't sacrifice performance but rather enhance it."

35. Exhibit 2024 shows a product review of Pure-Dry Polaris Gear, which used the novel features of claim 27 of the ‘287 Patent

(<http://www.snowmobile.com/news/polaris-offers-new-puredry-riding-gear-1405.html>). That review states in part, “Polaris boasts that Cocona Xcelerator technology transfers moisture for rapid evaporation faster than any other fabric, and its breathability is competitive with that of any other fabric on the market.”

36. Exhibit 2025 shows a product review of the HC H20 Jacket, which used the novel features of claim 27 of the ‘287 Patent

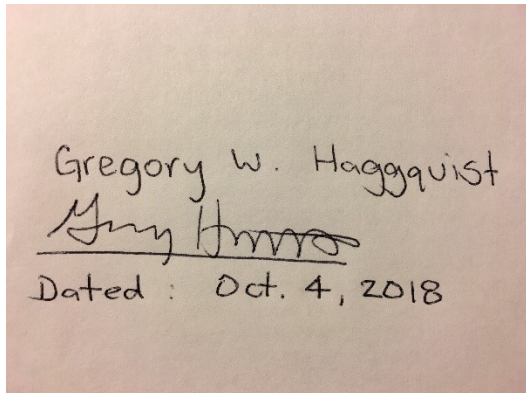
(<http://crossbikereview.com/clothes/reviews/hc-h20-jacket>).

37. Exhibit 2026 shows a product review of the Homeschool Snowboarding With Teeth 2.5L Shell Jacket, which used the novel features of claim 27 of the ‘287 Patent (<http://www.boredyak.com/2012/02/gear-review-2012-homeschool.html>). That review states in part, “I know, not everyone has access to the full Cocona Continuum Trifecta (that’s base, mid and shell layers). God knows I wish I did.”

38. Exhibit 2027 shows a product review of the Showers Pass Double Century EX jacket, which used the novel features of claim 27 of the ‘287 Patent (<https://bikemagic.com/cycling-clothing/showers-pass-double-century-ex-waterproof-jacket-review.html>).

39. Exhibit 2028 shows a product review of the Homeschool Snowboarding Line Up Pant, which used the novel features of claim 27 of the ‘287 Patent (<https://www.slugmag.com/product-reviews/product-reviews-45>). That review states in part, “Above all else, the ‘Cocona Xcelerator” technology is what sets Homeschool apart from the rest of the recent start-up companies. The technology utilizes a 10,000mm waterproof, micro-porous fabric that, when introduced to body heat, allows water vapors underneath the fabric (i.e. sweat) to rise out, keeping you dry, thus warm.”

40. I declare that all statements made herein of my own knowledge are true, that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 or Title 18 of the United States Code.



Gregory W. Haggquist
Guy Haggquist
Dated: Oct. 4, 2018